

NOTES ON *ARIOPHANTA*, *XESTINA*, *NILGIRIA*, AND *EUPLECTA*,
WITH LISTS OF SPECIES.

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Read 11th June, 1901.

PLATE XXV.

WE are indebted to Colonel Godwin-Austen for the remarkable discovery that in certain areas of the Indo-Malay (Indian or Oriental) region, members of the Limacidae (Zonitidae), having shells so diverse that they were formerly classed in distinct genera, or even in some cases in different families or subfamilies, agree amongst themselves in each area, and differ from those in other areas by characteristic details in the anatomy, details which, in the presence of the extraordinary similarity which prevails throughout the greater portion of the terrestrial Pulmonata, are sufficient to distinguish each local group. This discovery has entirely upset all previous attempts at the classification of the Indo-Malay Limacidae, and at present we can only arrange the species known in provisional local generic sections.

A considerable proportion of the larger forms of Limacidae in Peninsular India and Ceylon formerly referred to Malayan and Philippine genera, like *Hemiplecta* and *Xesta*, have now been shown to belong to one or another of the genera or subgenera cited in the title of this paper. In consequence of Godwin-Austen's recent work, some of the results of which, not yet published, he has communicated to me, it is now practicable to arrange generically many of the species known to occur in the zoological sub-region consisting of India south of the Himalayas and Ceylon, the area which I have proposed to call the Cisgangetic sub-region. It is true that the animals of several species, in addition to those already dissected, require examination before their affinities can be correctly ascertained, but still an attempt can now be made at classification. Amongst the species that still require examination are *Helix Basileus*, Bs. (the shell of which closely resembles that of certain Siamese forms of *Hemiplecta*), *H. Basilessa*, Bs., *H. concavospira*, Pfr., and *H. apicata*, Blf.

In drawing up lists of the species it must be understood that I accept Godwin-Austen's view (Land Freshw. Moll. Ind., vol. i, p. 133; vol. ii, p. 82) that *Ariophanta* should be restricted to Indian (Cisgangetic) species; also that his subgenus *Nilgiria* (op. cit., vol. ii, pp. 77, 81, 123) is distinguished from *Ariophanta* solely by having dextral instead of sinistral shells, a character which I agree with him in regarding as of no real importance, and that for the present, at all events, the genus *Euplecta* (op. cit., vol. ii, p. 96) should be confined

to forms inhabiting India and Ceylon. This genus includes a large number of species, although I have been able somewhat to reduce the number of nominal forms, but several of those in the list given below are only provisionally referred to the genus.

The following is the history of the names *Xestina* and *Nilgiria*.

The generic name *Xestina* was proposed in 1878 by Dr. Georg Pfeffer (Jahrb. Deutsch. Malak. Ges., 1878, p. 257) in a paper entitled "Die Naniniden." No type is mentioned nor is any description given, but in a footnote it is stated that this group (i.e. *Xestina*) corresponds to the group *Xesta* of Semper ("Diese Gruppe entspricht der Semper'schen Gruppe *Xesta*"). In the course of a discussion contained in the paper on the form of the foot (*Fussbildung*) in various 'Naninidæ' several species are referred to *Xestina*. These species are *X. Siamensis*, *X. Isabellina*, *X. bistrialis*, *X. ligulata*, *X. Maderaspatana*, and *X. resplendens*.

Now it is evident that Pfeffer did not propose simply to substitute his term *Xestina* for Semper's *Xesta*, though this is the only intelligible meaning of his footnote as it stands. Then it is important to notice that Semper ("Reisen im Archipel der Philippinen," 2^e Th., Wiss. Res., vol. iii, pp. 55, 68) in 1870, when he raised Albers's subgenus *Xesta* to generic rank, did not call it a *Gruppe* or group, but a *Gattung* or genus, which he divided into three sections, and it was to each one of these sections that he applied the term *Gruppen*.

I had already arrived at the conclusion that there was a misprint or omission in the footnote to Pfeffer's paper, and that "Gruppe *Xesta*" was a mistake for "Gruppe *Xesta* 1," when I came across a second paper of Pfeffer's published in 1882 (Abh. Ver. Hamb., vol. vii, pt. 2, p. 13), in which the fact was stated that the error I had suspected really existed, and that *Xestina* was proposed for *Gruppe* 1 of Semper's *Xesta* (Semper, t.c., p. 48). This group comprised the following species: *Xestina bistrialis*, *X. ligulata*, *X. Tranquebarica*, *X. Belangeri*, *X. Maderaspatana*, all of which are Cisgangetic forms.

The term *Xestina* had, however, been clearly defined by Von Martens in the *Zoological Record* for 1878 (published in 1880), vol. xv, Mollusca, p. 62. He there showed that *Xestina* corresponded to section C of his account of Semper's genus *Xesta* in the *Zoological Record* for 1870 (vol. vii, p. 153). This section C was Semper's *Gruppe* 1. It was in consequence of the definition of *Xestina* given by Von Martens that, when, in 1880,¹ I had occasion to describe a species allied to *X. Maderaspatana* and *X. Belangeri*, I called it *X. albata*.

The genus *Nilgiria* was proposed by Godwin-Austen in 1888 (Land Freshw. Moll. Ind., vol. i, p. 253), the type being *N. solata*, Bs.; and in 1899 (op. cit., vol. ii, p. 77) he described the anatomy of *N. solata*, *N. Tranquebarica*, and *N. bistrialis*, and pointed out (p. 76) that his genus *Nilgiria* included the species belonging to Semper's first group of *Xesta* (Von Martens' group C). Later in the same work, he described the anatomy of *N. ligulata*, *N. Chennai*, and *N. Ceylanica*

¹ Journ. As. Soc. Beng., vol. xlix, 2, p. 189, pl. iii, fig. 3; see p. 245 *infra*.

(tom. cit., 1899, pp. 123-127), and showed that, despite some small differences, chiefly in the mantle-lobes, both belonged to the same generic type (*Nilgiria*) and agreed in all important points with *Ariophanta*. More recently specimens of *H. Gardeneri* and *H. ganoma*, for which, beautifully preserved in formaline, we are indebted to the kindness of Mr. Oliver Collett, have been examined by Godwin-Austen, who informs me that they must be referred to the same genus as *H. Tranquebarica* (*H. semirugata*) and *H. bistrialis*. *H. ganoma* is a mere colour variety of *H. Juliana*.

The only conclusions at which I can arrive are that *Xestina* and *Nilgiria* are identical, and the former name is of course the older. The group to which these names have been applied is neither a genus nor subgenus, but merely a section of *Ariophanta*, distinguished by a character which is not of generic importance. The difference in the shells between the horny, globose, thin-lipped, and narrowly perforate *Ariophanta intumescens*, and the solid, depressed, thick-lipped, and openly umbilicated *A. thyreus*, or between *A. levipes* and *A. cysis*, all belonging to the typically sinistral forms of the genus, are quite as great as those between either of them and the dextrally wound *A. semirugata* or *A. bistrialis*.

In a former paper (Proc. Mal. Soc., vol. iii, 1899, p. 282), I gave a list of the typical sinistral *Ariophanta* known to me from Peninsular India. Further examination of Colonel Beddome's splendid collection and of my own has induced me to reduce one of the species named to subspecific rank, and to add one more species and two additional subspecies.

With regard to the forms arranged as subspecies, not only is it impossible, I believe, to lay down any rule by which a species can be distinguished from a subspecies, but I fail to recognize any real difference between them. Subspecies, for the present, I regard as forms sufficiently well marked to require a separate name, but which, owing to the presence of intermediate gradations, cannot be distinguished from each other. Species are forms which, so far as our present knowledge extends, are not connected by intermediate varieties, although in some cases the existence of such links may be suspected.

The following lists of species of *Ariophanta* and *Euplecta* inhabiting Cisgangetic India and Ceylon are drawn up from the comparison of materials in the British Museum and in the collections of Colonel Beddome, Mr. J. H. Ponsonby, and Mr. E. R. Sykes, supplemented by those obtained by my brother, the late Mr. H. F. Blanford, and by myself. I am much indebted to the gentlemen mentioned for assistance in the work, and also to Mr. E. A. Smith for most valuable aid with the British Museum collections. To Mr. Oliver Collett and Dr. Thurston, of Madras, I am under much obligation for specimens very kindly sent; and of course the work has been only possible in consequence of my having the advantage of Colonel Godwin-Austen's advice and aid.

GENUS ARIOPHANTA.

SECTION I: Typical, sinistral (*Ariophanta*).

A. Narrowly perforate.

a. Not horny; spirally banded above, or white or brown throughout.

- 1.
- Ariophanta levipes*
- (Müll.): Bombay, Eastern Guzerat.

Syn.: *H. trifasciata*, Chemn.

- 2.
- A. Laidlayana*
- (Bs.): Western and South-western Bengal, Orissa, etc., to south of the Godávari River.

- 3.
- A. Cadapaensis*
- , Nev. (
- Kadapaensis*
-): Nullamalai, Kurnool, and Cuddapah, in Madras Presidency (not the Nicobar Islands).

Syn.: *H. Nicobarica*, Chemn.

b. Horny, brownish, more or less translucent.

- 4.
- Ariophanta interrupta*
- (Bs.): Bengal, Orissa, Northern Circars, Vizagapatam; also South Canara.

Syn.: *H. Himalayana*, Lea.

Subspecies:

A. interrupta: Bengal, Orissa, etc.*A. immerita*, Blf.: South Canara, near Malabar Coast.

- 5.
- A. Bajadera*
- (Pfr.): Bombay Presidency, south of Nerbulda R.

Syn.: *H. ammonica*, Val.

- 6.
- A. intumescens*
- , Blf.: Mahableshtar.

- 7.
- A. Canarica*
- , n.sp.: South Canara.

B. Openly umbilicated.

- 8.
- A. eysis*
- (Bs.): Mountains near western coast of India, from Kadur in Mysore to Animalais.

Syn.: *H. auris*, Pfr.; *H. cystis*, Rve.

Subspecies:

A. eysis: Nilgiris, Animalais.*A. ampullaroides* (Rve.): Nilgiris.*A. Dalyi*, Blf.: Kadur, Mysore.

- 9.
- A. thyreus*
- (Bs.): Brahmagir, Nilgiris, Animalais, and Balarangam Hills.

Subspecies:

A. thyreus: Nilgiris, etc.*A. ryssolenma* (Albers): Sispara, Nilgiri Hills.*A. heteræa*, nov.: Neduwattam, Nilgiri Hills.SECTION II: Dextral (*Xestina*).

A. Colour uniform or nearly so, no spiral bands of colour.

a. Decussated above.

- 10.
- A. semirugata*
- ¹
- (Beck): Peninsula of India and Northern Ceylon.

Syn.: *Galaxias Tranquebarica*, Beck.¹ This is an extremely variable shell, and, since it is widely spread and common, it is wonderful that more names have not been proposed. The two specific terms

11. *A. Belangeri* (Desh.): Malabar and Madura.
Syn.: *H. Bombayana*, Grat.; *H. vitellina*, Pfr.

b. *The whorls transversely striated above, not decussated.*

12. *A. albata* (Blf.): Hills west of Tinnevely, South India.
Syn.: *Helix lueublunda*, Ancey.¹
13. *A. Sisparica* (Blf.): Sispara, Nilgiri Hills.
14. *A. novella* (Pfr.): Hills of South-western Ceylon.
15. *A. ceraria* (Bs.): Higher hills of South-western Ceylon.

B. Shell spirally banded with colour more or less distinctly.

a. *Decussately striated, but not grooved.*

16. *A. ligulata* (Fér.): Eastern Peninsular India, from the Ganges River to the Carnatic.

Syn.: *Nanina turbinata*, Beck.

17. *A. bistrialis* (Beck): Madras Presidency except near west coast, and Ceylon.

Syn.: *H. Taprobanensis*, Dohrn; ? *H. cyix*, Bs.

Subspecies:

A. bistrialis: Southern India and Ceylon.

A. Ceylanica (Pfr.): Ceylon (probably the hills of South-western Ceylon).

18. *A. ? Basilessa* (Bs.): Ranges near Malabar coast south of Palghat Gap.

Subspecies:

A. Basilessa: Animalais, Pulneys, Travancore Hills.

A. tinostoma (Blf.): Tinnevely Ghats, east of Papanassam.

A. enisa (Blf.): Agastyamalai, Travancore.

semirugata and *Tranquebarica* were both given by Beck (Index Molluscorum præc. ævi Mus. Princ. Aug. Christ. Fred., pp. 41, 42) without any description, but *semirugata* was founded on the figure and description of a shell in Martini and Chemnitz, wrongly referred by them to *Helix globulus*, Müll., whilst *Tranquebarica* was a manuscript name of Fabricius. The first most consequently be retained. The earliest published description of *Helix Tranquebarica* that I have been able to find is that by L. Pfeiffer in 1848 (Mon. Hel. Viv., vol. i, p. 41).

¹ Le Naturaliste, tom. iii (June, 1886), p. 293. M. Ancey says that this species, of which he received a specimen from Colonel Beddome, is not a *Nanina*, but a *Helix*. He points out that the shell does not present the characters of *Nanina*, either as regards the umbilicus, the columellar insertion, the general aspect, or the form of the aperture; and as a *Helix albata*, Fagot, already exists, the shell from Southern India requires to be renamed, and he accordingly proposes to call it *H. lueublunda*. It is evident that M. Ancey has not examined the animal, nor have I, but I have examined the animals of *A. Belangeri* and *A. Maderaspatana*, the shells of both of which resemble that of *A. albata* in all the characters specified by M. Ancey, except perhaps the general aspect, and both belong to the section commonly called *Nanina*, and possess the mucous gland and other characteristics of the group. I have not succeeded in ascertaining where *Helix albata*, Fagot, is described, but I have no doubt Mr. Ancey is correct in referring it to the Helicidæ, and I consequently see no reason for renaming the shell I called *Xestina albata*, which belongs to the Limacidæ.

19. *A. Gardeneri* (Pfr.): Hills of South-western Ceylon, above 4,000 feet.

b. Decussately striated with oblique grooves.

20. *A.?* *Basileus* (Bs.): Animalai teak forest.
Syn.: *Helix titanica*, Pfr.
21. *A.?* *Beddomei* (Blf.): Travancore Hills, west side.
22. *A. Chennai* (Pfr.): Hills of South-western Ceylon.

c. Whorls transversely striated, without decussation or grooves.

23. *A. Juliana* (Gray): South-western Ceylon.
Syn.: *Helix ganoma*, Pfr.
24. *A. Maderaspata* (Gray): The higher parts of Mysore, the Nilgiris, and other hill ranges of Southern India.
25. *A. Gassii*, n sp: Animalais, Pulneys, and Travancore Hills.
26. *A. solata* (Bs.): Nilgiris.

The genus *Euplecta* was proposed by Semper¹ with two Ceylonese species, *E. subopaca* and *E. Layardi*, as types. It has now been shown by Godwin-Austen to comprise several Ceylon species, and there can be little, if any, doubt that other forms from the hills of Southern India must be added. Anatomically the genus is only shown to be distinguished from *Ariophanta* by a peculiar feature of the genitalia, but the shell is, as a rule, more closely wound, and the animal is consequently more elongate. Nearly all the species have keeled shells, and many of them are distinguished by a peculiar decussated sculpture, which in a few forms becomes almost file-like.

The following is a list of the species referred for the present to *Euplecta*:—

GENUS EUPLECTA.

A. Turbinate or subturbinate, thin, horny, finely decussated.

1. *Euplecta Layardi* (Pfr.): Peninsula of India and Ceylon.
Syn.: *H. convexiuscula*, Pfr.
Subspecies:
E. Layardi: South-western Ceylon.
E. subdecussata (Pfr.): Indian Peninsula, North and East Ceylon.
2. *E. acalles* (Pfr.): Nilgiris.
3. *E. Baconi* (Bs.): Gangetic plain, Rohilkhand to Calcutta.

B. Turbinate, subturbinate, or lenticular, rather solid, with granular costulation or striation on upper surface.

4. *E. semidecussata* (Pfr.): South-western Ceylon and Travancore.
Subspecies:
E. semidecussata: Ceylon.
E. transfretata, nov.: Travancore.

¹ "Reisen im Archipel der Philippinen," 2^e Th., Wiss. Res., vol. iii (1870), p. 14.

5. *E. Rosamonda* (Bs.): Matelle, South-western Ceylon. (Probably a variety of *E. semidecussata*.)
6. *E. subcastor* (Beddome): Myhendra Hill, South Travancore.
7. *E. Travancorica* (Bs.): Travancore; South-western Ceylon.
Syn.: ? *H. lata*, Pfr. (This name, being older, will have to be used if the species are identical.)
Subspecies:
E. Travancorica: Travancore.
E. praeminens, Sykes: South-western Ceylon.
E. Agastyæ, Beddome, nov.: Agastyamalai, Travancore.
8. *E. Indica* (Pfr.): Western Ghats and Malabar coastland as far north as North Canara; Ceylon?
Subspecies:
E. Indica: Nilgiris, etc.
E. Shiplayi (Pfr.): Nilgiris, etc.
E. Malabarica, nov.: Malabar.
9. *E. albizonata* (Dohrn): Travancore; Ceylon.
10. *E. Emiliana* (Pfr.): South-western Ceylon.
Syn.: *H. Cingalensis*, Bs.
11. *E. Binoyaensis*, Godwin-Austen: Watawala, Ceylon. (See *postea*, p. 250.)
12. *E. lævis*, n.sp.: Ceylon (probably South-western Ceylon).
13. *E. verrucula* (Pfr.): South-western Ceylon. (See *postea*, p. 251.)
Syn.: *Nigritella nerva*, Jousseau.
14. *E. fluctuosa*, n.sp.: Gairsapa Falls, North Canara.
15. *E. Prestoni*, Godwin-Austen: Uda Pussellawa, Ceylon.
16. *E. scobinoidea*, Sykes: Watawala, Ceylon.

C. Depressed, or conoidly depressed.

a. Not carinate.

17. *E. subpaca* (Pfr.): Higher hills of South-western Ceylon.
Syn.: *H. corylus*, Rve.
18. *E. partita* (Pfr.): South-western Ceylon.
Syn.: *H. marcida*, Bs.; *H. subconoidea*, Pfr.
19. *E. Trimeni* (Jouss.): Nuwara Eliya, Ceylon. (Perhaps an immature *E. subpaca*, var.)

b. Carinate.

20. *E. aceducta* (Bs.): Western Ghats from Mysore to Travancore; Ceylon.
Syn.: *Nanina Koondaensis*, Blf.; *N. subkoondaensis*, Nev. MS.
21. *E. Isabellina* (Pfr.): South-western Ceylon.
22. *E. Colletti*, Sykes: Watawala, Ceylon.

D. Trochiform.

a. Sculpture granular or tuberculate.

23. *E. cacuminifera* (Bs.): Nilgiris.
24. *E. granulifera*, n.sp.: North Canara.

b. Sculpture finely decussated.

25. *E. hyphasma* (Pfr.): South-western Ceylon.

26. *E. turritella* (H. Ad.): Nuwara Eliya, Ceylon.

Syn.: *Nanina conulus*, H. Ad. (1867), nec Von Martens (1864).

c. Smooth.

27. *E. ? mucronifera*, n.sp.: Animalai Hills.

28. *E. ? Phidias* (Thorp apud Hanley): Upper Uva, Ceylon.

29. *E. ? conearospira* (Pfr.): South-western Ceylon.

30. *E. ? apicata* (Blf.): Nilgiris.

31. *E. ? oribates*, n.sp.: Travancore.

The last five species, of which the animals have not been examined, may belong to *Sitala* or some other genus.

The following are descriptions of the forms for which new names are proposed:—

1. *ARIOPHANTA CANARICA*, n.sp. Pl. XXV, Fig. 1.

Testa sinistrorsa, aperte perforata, globoso-turbinata, fusco-cornea, solidiuscula, confertim rugose striata, lineis impressis subobsoletis superne decussata; spira conoidea, apice subacuto, sutura parum impressa; anfr. 5, superne subplanulati, ultimus ad peripheriam carinatus, infra carinam versus aperturam descendens, subtus inflatus, circa umbilicum modice compressus; apertura diagonalis, rotundata; peristoma rectum, vix expansiusculum, incrassatum, margine columellari late reflexo. Maj. diam. 30, min. 24·5, axis 21 mm.

Hab.—South Canara, ad latus occidentale Peninsulae Indiae (Beddome).

This is nearly allied to *A. intumescens*, and should perhaps be regarded as a small thick variety with a higher spire, more acute apex, stronger decussated sculpture, a distinct keel, and wider umbilicus. Three specimens obtained by Colonel Beddome are in his collection. The dimensions of the largest are given above; the smallest measures 26, 21·5, and 17·5 mm.

2. *ARIOPHANTA HETEREA* (*A. thyreï* n.subsp.). Pl. XXV, Fig. 2.

Testa sinistrorsa, profunde umbilicata, depressa, tenuiuscula, oblique striata, haud decussata, periostraco fulvo-corneo induta, subperiostraco rubello-albida, fascia exigua pallida, subtus castaneo-limbata, intra aperturam conspicua, ad peripheriam circumdata; spira convexa, apice perobtusum, sutura versus aperturam impressa; anfr. 5, superne planulati, ultimus convexior, haud descendens, vix angulatus, subtus mediocriter inflatus, nitidus, radiato-striatus; apertura obliqua, rotundato-lunaris, intus pallide castanea; peristoma vix obtusum, rectum, marginibus convergentibus, callo tenui junctis, columellari curvato-obliquo, juxta umbilicum antice triangulatim producto. Diam. maj. 37, min. 30, axis 21 mm.

Hab.—Prope Sispara, ad latus occidentale montium Nilgiri Indiae australis.

This is distinguished from typical *A. thyreus* (Bs.), by being less depressed and thinner, and more narrowly umbilicated, the suture is deeper near the mouth, the last whorl is more tumid beneath and less angulate at the periphery, and the sculpture is not decussated. The colour is paler, and the reddish band below the periphery is very distinct.

A. rysssolemma (Albers), as figured in Pfeiffer's "Novitates Conchologicae," vol. i, p. 37, pl. x, figs. 13, 14, evidently from a weathered specimen, is another form of *A. thyreus* deserving of a distinctive name, and which I class as a subspecies. My own specimens were obtained, like those of *A. heteræa*, at Sispara Ghat. They have strongly decussated sculpture, and are much larger than typical *thyreus*, measuring maj. diam. 40, min. 33, axis 20 mm. (the type of *A. thyreus* was 34 mm. in major diameter).

A. heteræa is intermediate between *A. thyreus* and *A. cysis*, and has some claim to be regarded as a distinct specific form.

3. ARIOPHANTA (XESTINA) GASSII, n.sp. Pl. XXV, Fig. 3.

Testa subobteete perforata, depresso-globosa, tenuis, rugato-striata, superne fulva vel dilute castanea, subtus pallidior, zona castanea angusta supraperipherali ornata; spira parum elevata, conoideo-convexa, sutura impressa; anfr. 6 convexi, ultimus latior, haud descendens, ad peripheriam subangulatus, subtus convexus; apertura obliqua, lunato-subovalis; peristoma obtusum, album, margine columellari obliquo, juxta perforationem abrupte atque sublate reflexo, perforationem partim tegente. Diam. maj. 36, min. 29, axis 21 mm.

Hab.—In montibus Animalai et Pulney dictis, ad latus occidentale Peninsulae Indicae haud procul a littore Malabarico, necnon in provincia Travancore (Beddome).

This is distinguished from *A. Maderaspatana* by rather larger size, narrower perforation, generally darker and more uniform coloration, and especially by the columellar margin of the peristome as shown on Pl. XXV, Figs. 3 and 4. In *A. Maderaspatana* the columellar margin is slightly expanded throughout, the amount of expansion increasing gradually above, and the terminal portion being carried forward, whilst in *A. Gassii* there is scarcely any expansion till close to the perforation, where the margin is abruptly reflexed.

4. EUPLECTA TRANSRETATA (*E. semidecussata* n.subsp.).

Pl. XXV, Fig. 9.

Testa subobteete perforata, depresso-turbinata, castanea, rugato-striata, lineis impressis spiralibus decussata, subtus levior, solum extus decussata; spira conoidea, apice acuto, sutura impressa; anfr. 7 lente accrescentes, convexiusculi, ultimus non descendens, ad peripheriam angulatus, subtus convexior; apertura obliqua, angulato-lunaris, fere semiovalis; peristoma tenue, rectum, margine columellari breviter reflexo, perforationem fere tegente. Diam. maj. 30, min. 27, axis 18 mm.

Hab.—In montibus Travancoricis Indiæ australis (Beddome).

This is a small, rather thin, and deep chestnut variety of the Ceylon *E. semidecussata*.

5. EUPLECTA AGASTYÆ (Beddome MS. ; *E. Travancoricæ* n.subsp.).
Pl. XXV, Fig. 10.

Testa subobtecte perforata, turbinato-depressa, tennis, fulvo-corneo, undique confertim et undatim striata, lineis impressis crebris minute decussata; spira conoidea, apice acuto, sutura impressa; anfr. 6-6½ convexi, gradatim accrescentes, ultimus ad peripheriam carinatus, subtus tumidus; apertura obliqua, rotundato-lunaris, extus vix angulata; peristoma tenue, rectum, margine basali regulariter incurva, columellari ad perforationem fere verticali, brevissime sed late reflexo. Diam. maj. 34, min. 30, axis 22 mm.

Hab.—In monte Agastyæ dicto haud procul ab extremitate meridionali Indiæ ad alt. 4,000 pedum (Beddome).

Nearly allied to *E. Travancorica*, Bs., but thinner and more tumid, with much finer sculpture.

6. EUPLECTA MALABARICA (*E. Indicæ* n.subsp.). Pl. XXV, Fig. 5.

Testa subtecte perforata, depresso-turbinata, fere lenticularis, solidula, pallide fulva, costulis granuliferis obliquis superne ornata; spira conoidea, apice acutiuseculo, sutura impressa; anfr. 6½ convexi, lente accrescentes, ultimus ad peripheriam acute compresso-carinatus, infra carinam lævior, radiatim striatus, versus peripheriam decussatus; apertura diagonalis, angulato-lunaris; peristoma rectum, album, obtusum, margine columellari curvato-obliquo, ad perforationem triangulatim reflexo. Diam. maj. 17, min. 16, axis 10 mm.

Hab.—In littore Malabarico circa Beypur, Nellambur, etc., etiam in provincia Canara.

A small variety of *E. Shiplayi* (*E. Indica*, var.) with a higher spire than usual. It appears to be characteristic of the Malabar coastland as far north as North Canara. Numerous specimens were found at Beypur by the late Mr. Fairbank and myself, and elsewhere by Colonel Beddome.

Godwin-Austen's species *E. Binoyaensis* (Land Freshw. Moll. Ind., vol. ii, 1899, p. 103, pl. xevii, figs. 1, 1a) was described from an immature specimen. I am indebted to Mr. Oliver Collett, the original discoverer, for an adult shell, of which I add a figure and description.

7. EUPLECTA BINOYAENSIS, Godw.-Aust. Pl. XXV, Fig. 7.

Testa perforata, depresso-turbinata, carinata, fulvo-cornea, tenui-uscule, costulis confertis, arcuatis, dense moniliferis superne ornata; spira conoidea; anfr. 5 convexi, regulariter crescentes, ultimus carina compressa prominente elevata instructus, basi tumidus, radiatim striatus; apertura obliqua, lunato-rotundata, ad peripheriam angulata; peristoma simplex, margine columellari obliquo, parum reflexo. Maj. diam. 12, min. 10, axis 6.5 mm.

Hab.—Watawala, Ceylon (Collett).

Distinguished from *E. Emiliana* by having one whorl less, by its much more prominent keel, more tumid lower surface, and higher and more rounded mouth.

8. *EUPLECTA LÆVIS*, n.sp. Pl. XXV, Fig. 8.

Testa obtecte perforata, depresso-turbinata, sublenticularis, albidocornea, translucens, subtus lineis confertis concentricis albis lacteis ornata; lævis, superne minute decussatim striata, subtus radiatim; spira conoidea, sutura impressa; anfr. 6 convexi, ultimus ad peripheriam acute carinatus, subtus convexus; apertura parum obliqua, angulato-lunaris; peristoma tenue, margine columellari superne verticali, breviter triangulatim reflexo, perforationem partim tegente. Diam. maj. 17, min. 15, axis 9.5 mm.

Hab.—In Ceylon (Yerbury).

Type in the British Museum. Exact locality not recorded, but probably amongst the hills in the south-western part of the island. This shell is allied to *E. Emiliana*, but is more sharply keeled, and is distinguished by its smooth upper surface and by the milky concentric lines on the base.

9. *EUPLECTA VERRUCULA* (Pfr.). Pl. XXV, Fig. 6.

Testa perforata, turbinata, acute carinata, tenuis, pallide cornea, superne oblique granulato-costulata, granulis elongatis in lineis spiralibus dispositis; spira conoidea, apice acuto; anfr. 6 convexiusculi, ultimus ad peripheriam compresse carinatus, subtus convexus; apertura obliqua, angulato-lunaris; peristoma acutum, rectum, margine columellari curvato, undique expansiusculo, superne triangulatim reflexo. Diam. maj. 14, min. 13, axis 8 mm.

Hab.—Watawala, Ceylon.

Helix verrucula, Pfr., was described (Proc. Zool. Soc., 1854, p. 50) from half-grown shells in Mr. Cuming's collection. The same immature specimens, now in the British Museum, were figured by Reeve in the *Conchologia Iconica*, No. 1327, and by Hanley in the *Conchologia Indica*, pl. cl, fig. 9. I find in Mr. E. R. Sykes' collection two adult specimens collected by Mr. O. Collett at Uda Pusselawa, Watawala, Ceylon. From one of these the figure on Pl. XXV and the preceding description are taken.



FIG. I.—*Euplecta fluctuosa*, n.sp., and sculpture much enlarged.

10. *EUPLECTA FLUCTUOSA*, n.sp. Fig. I.

Testa subobtecte perforata, turbinata, carinata, pallide cornea, striis minutis erebris flexuosis lineisque impressis valde confertis decussata, striis infra carinam minus undatis et versus medium obsolescentibus; spira conoidea, apice obtuso, sutura impressa; anfr. 5 convexi, ultimus compresse carinatus, subtus convexus; apertura diagonalis, subrhombea,

fere tetragonalis, marginibus vix convergentibus; peristoma tenue, rectum, margine columellari triangulatim reflexo. Maj. diam. 11·5, min. 10·5, axis 7 mm.

Hab.—Gairsapa Falls, North Canara (coll. Ponsonby).

Two specimens are in Mr. J. H. Ponsonby's collection. The shell has some resemblance to *E. verrucula*, but is distinguished by its fine, very flexuous striation, its less numerous whorls, and its diagonal aperture. From *E. Indica*, and especially its variety *E. Malabarica*, which has a similarly oblique aperture, *E. fluctuosa* may be known by its sculpture, higher spire, and less numerous whorls.

11. *EUPLECTA GRANULIFERA*, n.sp. Fig. II.

Testa minute et subobtecte perforata, subturbinate trochiformis, tenuis, cornea, superne granulis minutis in seriebus confertis transversis spiralibusque dispositis ornata, subtus lævis, vix striatula; spira elevato-conica, apice obtuso, glabro, sutura impressa; anfr. 7 convexi, lente accrescentes, ultimus ad peripheriam filiformiter carinatus, subtus mediocriter convexus; apertura parum obliqua, rotundato-lunaris; peristoma tenue, marginibus convergentibus, columellari fere verticali, triangulatim reflexo, perforationem partim tegente. Maj. diam. 6·25, min. 5·75, axis 5·75 mm.

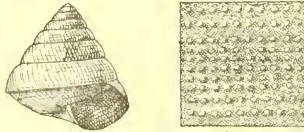


FIG. II.—*Euplecta granulifera*, n.sp., $\times 3$, and sculpture much enlarged.

Hab.—North Canara (Beddome).

The sculpture is peculiar, consisting of minute tubercles arranged in spiral and transverse rows, the spiral arrangement being the more prominent, and, as in *E. cacuminifera*, some of the spiral rows consist of larger tubercles, but the larger rows are irregularly distributed.

12. *EUPLECTA* (?) *MUCRONIFERA*, n.sp. Fig. III.

Testa subobtecte perforata, trochiformis, tenuis, lævis, vix striatula, lacteo albida, fasciis irregularibus fuscis obliquis spiralibusque variata,

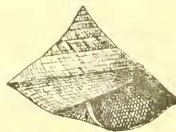


FIG. III.—*Euplecta* (?) *mucronifera*, n.sp.

prope aperturam castanea, epidermide viridi-flavo pellucido, superne tenui, subtus crassiori, induta; spira conoidea, lateribus concavis, apice attenuato mucronato, sutura lineari, haud impressa; anfr. $7\frac{1}{2}$

